"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHIN, Ye. Ye.

137-58-5-10414

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 218 (USSR)

AUTHORS: Cherkashin, Gladyshevskiy, Kripyakevich [Cherkashyn, Ye. Ye., Gladyshevs'kyy, Ye. I., Kryp"yakevych, P. I.]

TITLE: Compounds of the Transition Metals With Beryllium, Silicon, Germanium, and Tin (Soyedineniya perekhodnykh metallov s berilliyem, kremniyem, germaniyem i olovom) [Spoluky perekhidnykh metaliv z beryliyem, kremniyem, germaniyem i olovom]

PERIODICAL: Dopovidi ta povidomlennya. L'vivs'k. un-t, 1957, Nr 7, Part 3, pp 180-183 (in Ukrainian)

ABSTRACT: An investigation is made of binary and ternary systems (Mn, Cr, V, Nb, Mo, and W with Be; Co+Si, Ni+Si, Co+Ge, Ni+Ge, Co+Sn, and Ni+Sn with Mn). X-ray and microstructural analyses were made, resulting in the discovery of 17 new compounds and determination of the crystal structures of 12 of these. (See Table on Card 2)

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Compounds of the Transition (cont.)

Compound	Structural Type	Syngony	Lattice periods, kc
$MnBe_{3\rightarrow13}$	$MdCu_2$	Cubic	$\alpha = 5.91$
$GrBe_{12}$	$ThMn_{12}$	Tetragonal	$\alpha = 7.219$, $c = 4.168$
$MoBe_{12}$	"	"	7.240 4.180
VBe_{12}	"	"	7.251 4.186
$NbBe_{12}$	"	"	7.357 4.247
Go_2MnSi	CsCl	Cubic	$a = 2.827$
Co_2MnGe	Cu_2MnAl	"	5.72
Ni_2MnGe	"	"	5.68
Go_2MnSn	"	"	5.991
Ni_2MnSn	"	"	6.045
$Mn_3Go_3Si_2$	$MdZn_2$	Hexagonal	$\alpha = 4.738$, $c = 7.452$
$Mn_3Ni_3Si_2$	"	"	4.752 7.492

Mn and Be form coupounds of variable composition $MnBe_{3\rightarrow13}$ with a wide interval of homogeneity. The compounds CO_2MnSn and Ni_2MnSn have melting points of 950 and 1050°C, respectively, and are ferromagnetic. G. I.

1. Chemical compounds--Production 2. Chemical compounds--Microstructure

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

(4) PHASE I BOOK EXPLOITATION SOV/3333

Cherkashin, Yevgeniy Yevgen'yevich

Metrika ravnovesnoy khimicheskoy diagrammy sistem s assotsiirovannymi komponentami (Metrics of Chemical Equilibrium Diagrams of Systems With Associated Components) [L'vov] Izd-vo L'vovskogo univ., 1958. 106 p. Errata slip inserted. 500 copies printed.

Sponsoring Agency: L'vov. Gosudarstvennyy universitet im. Ivana Franko.

Resp. Ed.: Ye. I. Gladyshevskiy, Docent; Ed.: V. S. Zemskov; Tech. Ed.: T. V. Saranyuk.

PURPOSE: This book is intended for chemists, mineralogists and other persons working in the physicochemical analysis of complex systems.

COVERAGE: The book reviews the derivation of equations of composition property curves of systems with chemically interacting components (i.e., the metrics) of chemical diagrams in order to

Card 1/6

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

determine the relationship between the properties and composition of systems in which chemical processes take place. In Chapter I, derivations of generalized Stepanov equations (based on the law of mass action) were used to establish some new relationships in studying the metrics of diagrams of systems of dissociated components, with special attention to the solvent as a third component, which permitted the application of chemical diagram metrics to condensed systems and, to some degree, the application of limited ideal laws (e.g. the law of mass action) to liquid systems. Also, the metrics of crystallization isotherms under conditions of an ice field in the case of neutralization and complex-forming reactions, and solubility isotherms of three-component metallic systems are briefly reviewed. The author thanks F. M. Cherkashina and O. A. Prib for assistance with the laboratory work and mathematical computations, and V. Ya. Anosov, P. I. Kripyakevich and Ye. I. Gladyshevskiy for editorial assistance. There are 62 references: 58 Soviet, 2 English and 2 German.

TABLE OF CONTENTS:

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

AVAILABLE: Library of Congress (QD 501.C476)

Card 6/6

TM/os
3/18/60

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

78-3-3-17/47

AUTHORS: Cherkashin, Ye. Ya., Gladyshevskiy, Ye. I., Kripyakevich, P. I., Kuz'ma, Yu. B.

TITLE: X-Ray Structural Investigations of Some Systems of Transition Metals (Rentgenostrukturnoye issledovaniye nekotorykh sistem perekhodnykh metallov)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 3, pp. 650-653 (USSR)

ABSTRACT: By the X-ray structural method alloys in the following systems were investigated: Mn-Be, Cr-Be, V-Be, Mo-Be, W-Be, Ta-Be, Nb-Be, Mn-Fe-Si, Mn-Fe-Sn, Mn-Co-Si, Mn-Co-Ge, Mn-Co-Ni, Mn-Ni-Si, Mn-Ni-Ge, Mn-Ni-Sn, Mn-Cu-Si, Zr-V-Ni, Zr-Cr-Ni, Zr-Mn-Ni, Zr-Fe-Ni, Zr-Co-Ni.
By the investiagtions of the systems the following new compounds were determined which occur at 400°C:
$MnBe_8$ (at t = 1100°C, the composition is $MnBe_{13}$ of the type $MgCu_2$), $CrBe_{12}$ ($ThMn_{12}$), VBe_{12} ($ThMn_{12}$), $NbBe_{12}$ ($ThMn_{12}$)m $NbBe_2$, $NbBe_5$, $MoBe_{12+x}$, WBe_{12+x}, CO_2MnSi (CsCL), $Mn_3CO_3Si_2$

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

78-3-3-17/47

X-Ray Structural Investigations of Some Systems of Transition Metals

($MgZn_2$), MnCoSi, $Mn_{12}CO_3Si_5$, $Mn_3Ni_3Si_2$ ($MgZn_2$), MnNiSi, CO_2MnGe (Cu_2MnAl), Ni_2MnGe (Cu_2MnAl), Co_2MnSn (Cu_2MnAl), Ni_2MnSn (Cu_2MnAl), ZrMnNi ($MgCu_2$), $ZrV_{0,5}Ni_{1,5}$ ($MgCu_2$).

In the systems Mo-Be, W-Be and Ta-Be compounds with a tetragonal structure occur. The composition determined for the first time is the following: $MoBe_{12}$, WBe_{12} and $TaBe_{12}$. All these compounds belong to the type $ThMn_{12}$. In the system Mn-Fe-Si the following solid solutions occur: Mn_3Si and Fe_3Si. In the system Mn-Co-Si solid solutions of cobalt and silicon in β-Mn occur and solutions of cobalt in Mn_5Si_3 and Co in MnSi. In the system Zr-Fe-Ni a solid solution of Ni in $ZrCo_2$ occurs. In the system Zr-Co-Ni a solid solution of Ni in $ZrCo_2$ occurs. There are 1 figure and 11 references, 5 of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I. Franko (L'vov State University imeni I. Franko)

SUBMITTED: June 25, 1957

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHIN, Ye.Ye. [Cherkashyn, IE.IE.]

Metric of a chemical equilibrium diagram. Part 1. Nauk.zap. L'viv.un. 46:53-62 '58. (MIRA 12:7)
(Phase rule and equilibrium)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHIN, Ye.Ye.; [Cherkashyn, IE.IE.]

Metric of a chemical equilibrium diagram. Part 2. Nauk.zap. L'viv. un. 46:63-78 '58. (MIRA 12:7)
(Phase rule and equilibrium)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHIN, Ye.Ye. [Cherkashyn, IE.IE.)

Metric of a chemical equilibrium diagram. Part 3. Nauk.zap. L'viv.un. 46:79-90 '58. (MIRA 12:7)
(Phase rule and equilibrium)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

KUZ'MA, Yu.B.; CHERKASHIN, Ye.Ye. [Cherkashyn, IE.IE.]

Crystalline structure of the compound $MnNi_{1.55}Si_{0.45}$. Dop.AN URSR no.10:1413-1416 '60. (MIRA 13:11)

1. L'vovskiy gosudarstvennyy universitet im. Iv.Franko. Predstavleno akademikom AN USSR V.N.Svechnikovym.
(Manganese-nickel-silicon alloys)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

TESLYUK, M.Yu.; CHERKASHIN, Ye.Ye. [Cherkashyn, IE.IE.]

Crystalline structure of the ternary compound $MgCu_{1.5}Ge_{0.5}$.
Dop. AN URSR no.9:1172-1174 '61. (MIRA 14:11)

1. L'vovskiy gosudarstvennyy universitet. Predstavleno akademikom AN USSR V.N. Svechnikovym [Sviechnykov, V.M.].
(Magnesium compounds)
(X-ray crystallography)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

S/226/62/000/006/016/016
E193/E383

AUTHORS: Kuz'ma, Yu.B., Kidun, S.M., Lakh, V.I., Stadnik, B.I. and Cherkashin, ~~Ye.Ye.~~

TITLE: Investigation of the physicochemical properties of tungsten-rhenium thermoelectrodes

PERIODICAL: Poroshkovaya metallurgiya, no. 6, 1962, 100 - 103

TEXT: The object of the present investigation was to determine the causes of instability of the thermoelectric and mechanical properties of W-Re alloy in relation to the conditions and duration of heat-treatment. Wire specimens, 0.5 and 0.34 mm in diameter, containing 5, 10, 15 and 20 wt.% Re (alloys BP(VR)-5, VR-10, VR-15 and VR-20) were used in the experiments. The heat-treatment (20 - 700 h at 1400 - 2 000 °C) was conducted in vacuum, in argon or in hydrogen. All the investigated compositions were in the single-β-phase range. The Re content of the alloys was checked by chemical analysis before and after heat treatment. The experimental work comprised measurements of thermo-e.m.f., X-ray diffraction analysis and examination of the microstructures of longitudinal and transverse cross-sections of the specimens. "The thermo-e.m.f. increased

Card 1/4

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

with increasing temperature and time of the heat treatment; in addition, the thermo-e.m.f. decreased after treatment in argon or hydrogen and increased after vacuum treatment" [Abstracter's note: this statement does not tally with the contents of a table in which the results of measurements of thermo-e.m.f. are reproduced, there being no clear correlation between the values of the thermo-e.m.f. and the conditions of heat treatment.] The thermocouple VR-15/20 (with a high Re content) proved more stable in hydrogen at 1 800 - 2 000 °C than the thermocouple VR-5/20 with a lower Re content. The Re concentration increased with increasing annealing time, the relative increase being higher for electrodes with lower Re contents. The relative change in the Re content was lower in vacuum than in argon or hydrogen. The degree of recrystallization of thermo-electrodes increased with increasing temperature and time of the treatment and dependend on the Re content. A slight longitudinal splitting of the electrodes was caused by texture, which persisted even after prolonged annealing. Phase analysis showed that all the thermoelectrodes studied constituted solid solutions whose lattice constants depended on the composition of the alloy. In some

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Investigation of ....

specimens, the σ- and χ-phases were also observed. The formation of the σ-phase was attributed to a decrease in the tungsten content in the β-phase, caused by a reaction between tungsten and impurities (oxygen, nitrogen, carbon) in the ambient atmosphere. The thermoelectrode VR-20. treated in vacuum for 700 h, contained the β-phase in equilibrium with the χ-phase with a lattice constant a = 9.63 kX, which indicated that the σ-phase of the system W-Re existed at temperatures above 1 400 °C. Prolonged holding at 400 °C brought about decomposition of the σ-phase and attainment of the β + χ equilibrium. Tungsten carbide (W_2C), formed during annealing in vacuum above 1 300 °C due to the presence of oil vapours, was present in addition to the β-phase in thermoelectrodes operating in vacuum. When the specimens were vacuum-annealed for 20 h at 2 000 °C in a furnace with graphite heating elements, W_2C or the σ-phase (in specimens with a Re content of 23%) of the W-Re system were precipitated from the β-phase. Alumina sheaths did not offer sufficient protection against the effect of carbon at 1 800 - 2 000 °C. The formation of W_2C and the σ-phase at 1 800 °C could be prevented by using beryllia sheaths which, however, were not effective at 2 000 °C. The presence of the

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Investigation of S/226/62/000/006/016/016
E193/E383

α-phase and W_2C in the thermoelectrodes studied caused a decrease in their ductility.
There is 1 table.

ASSOCIATION: L'vovskiy gosuniversitet im. I. Ya. Franko
(L'vov State University im. I. Ya. Franko)

SUBMITTED: April 14, 1960

Card 4/4

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Ye. Ye. Cherkashin

Physicochemical investigation of the Nb-Co-Si system.

Title: Seminar on refractory metals, compounds, and alloys (Kiev, April 1963).

Source: Atomnaya energiya, v. 15, no. 3, 1963, 266-267

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AT4035160 S/0000/63/000/000/0067/0070

AUTHOR: Glady*shevskiy, Ye. I.; Kripyakevich, P. I.; Cherkashin, Ye. Ye.; Zarechnyuk, O. S.; Zalutskiy, I. I.; Yevdokimenko, V. I.

TITLE: Crystalline structure of intermetallic compounds of rare-earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'ny*ye elementy* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 67-70

TOPIC TAGS: rare earth, transition element, geochemistry, binary alloy, ternary alloy, intermetallic compound, alloy crystal structure, zinc, aluminum, germanium

ABSTRACT: The existence of compounds of the rare-earth elements with metals, their composition and the type of crystalline structure were investigated, with particular attention to the similarities and differences between the various rare-earth elements, as well as between these elements and their neighbors in the periodic table. The systems of La, Ce, Pr, Nd, Dy, Er, Gd, Tu and Y with magnesium were investigated first. It was found that there are no complete analogies in these systems, but that the system Y/Mg is closer to Er/Mg than to the La/Ce system. In the systems of rare-earth elements with zinc, aluminum and germanium, new compounds were found, the structural parameters of which are given. It is interesting that the system Y/Al differs from the system Er/Al and is similar to the system with

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AT4035160

La, Ce, Pr and Nd. Compounds of La and Ce with Ge have rhombic modifications in addition to the tetragonal one. Systems with cobalt and iron were also investigated and their parameters are given. In the La/Fe system no compounds are formed. A weakening tendency to form compounds with a decreasing order number of rare-earth elements is also found in many systems with manganese. Finally, the ternary systems cerium-transition metal (or copper)-aluminum and cerium-aluminum-silicon were investigated and their lattice constants are given. Orig.art.has: no graphics.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: IC, ES NO REF SOV: 000 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

GLADYSHEVSKIY, Ye.I.; MARKIV, V.Ya.; KUZ'MA, Yu.B.; CHERKASHIN, Ye.Ye.

Crystal structure of certain ternary intermetallic titanium compounds.
Titan i ego splavy no.10:71-73 '63. (MIRA 17:1)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHIN, Ye.Ye.; KRIPYAKEVICH, P.I.; OLEKSIV, G.I.

Crystalline structures of ternary compounds in the systems Li - Cu - Al and Li - Zn - Al. Kristallografiia 8 no.6: 846-851 N-D'63. (MIRA 17:2)

1. L'vovskiy gosudarstvennyy universitet imeni I. Franko.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 25036-65 EWT(m)/EPR/T/EWP(t)/EWP(b) Ps-4 IJP(c) JD/JG/MLK

ACCESSION NR: AT4018707 S/0000/64/000/000/0151/0152

35 B+1

AUTHOR: Cherkashin, Ye. Ye.; Zarechnyuk, O.S.; Kripyakevich, P.I.; Kolobnev, I.F.

TITLE: The crystalline structures of compounds in the system cerium-manganese-copper-aluminum and in the components of their ternary systems

SOURCE: Vsesoyuznoye soveshchaniye po splavam redkikh metallov, 1963. Voprosy* teorii i primeneniya redkozemel'ny*kh metallov (Problems in the theory and use of rare-earth metals); materialy* soveshchaniya. Moscow, Izd-vo Nauka, 1964, 151-152

TOPIC TAGS: quaternary system crystal structure, ternary system crystal structure, cerium alloy, manganese alloy, copper alloy, aluminum alloy

ABSTRACT: Investigation of this quaternary, aluminum-rich system, which had not been studied previously, was undertaken as a continuation of studies of the ternary systems Ce-Mn-Al and Ce-Cu-Al. The ternary compounds found had been reported earlier and are again listed and described. The nature of the phases existing in equilibrium with the α-phase in the quaternary system was investigated in 40 melts with constant aluminum content (85.7 at .%) under X-ray. This showed the following compounds to be present: binary $MnAl_6$, $CeAl_4$, $CuAl_2$, ternary $CeMn_4Al_8$ and $CeCu_4Al_8$ and 2 quaternary com-

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 25036-65
ACCESSION NR: AT4048707

pounds. One of these, called Q_1, contained a rather large amount of Mn and was in equilibrium with $CeMn_4Al_8$ and Q_2, which latter was rich in copper. No crystal structure was determined for Q_1. Q_2 was given the formula $Ce(Mn, Cu, Al)_{11}$. This had a cubic structure with a = 8.40 A. The intensity of the lines agreed with those calculated for the type $BaHg_{11}$. Further studies will deal with the range of homogeneity of this quaternary system.

ASSOCIATION: none

SUBMITTED: 13Jun64 ENCL: 00 SUB CODE: IC, SS

NO REF SOV: 003 OTHER: 005

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 9079-65 EWT(m)/EWP(b) Pad JD/HW

ACCESSION NR: AP4043576 S/0078/64/009/008/1898/1904

AUTHOR: Kuz'ma, Yu. B.; Gladyshevskiy, Ye. I.; Cherkashin, Ye. Ye.

TITLE: Mn-Ni-Si System

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 8, 1964, 1898-1904

TOPIC TAGS: manganese nickel silicon system, manganese nickel silicon alloy, manganese nickel silicon compound, manganese silicon compound, nickel silicon compound

ABSTRACT: The authors studied 240 manganese-nickel-silicon alloys, mostly those rich in manganese and nickel. On the basis of the results, the isothermal (for 800C) section of the ternary diagram was plotted (see Fig. 1 of the Enclosure). At 800C ten ternary compounds exist in the system, all of them with a small region of homogeneity. No ternary compounds were found in alloys containing over 50 at% silicon. Orig. art. has: 4 figures and 3 tables.

Card 1/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 9079-65
ACCESSION NR: AP4043576

ASSOCIATION: L'vovskiy ordena Lenina Gosudarstvenny*y Universitet imeni I. Franko (Lvov "Order of Lenin" State University)

SUBMITTED: 01Jun63 ATD PRESS: 3105 ENCL: 01

SUB CODE: MM, IC NO REF SOV: 011 OTHER: 004

Card 2/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 9079-65
ACCESSION NR: AP4043576

ENCLOSURE: 01

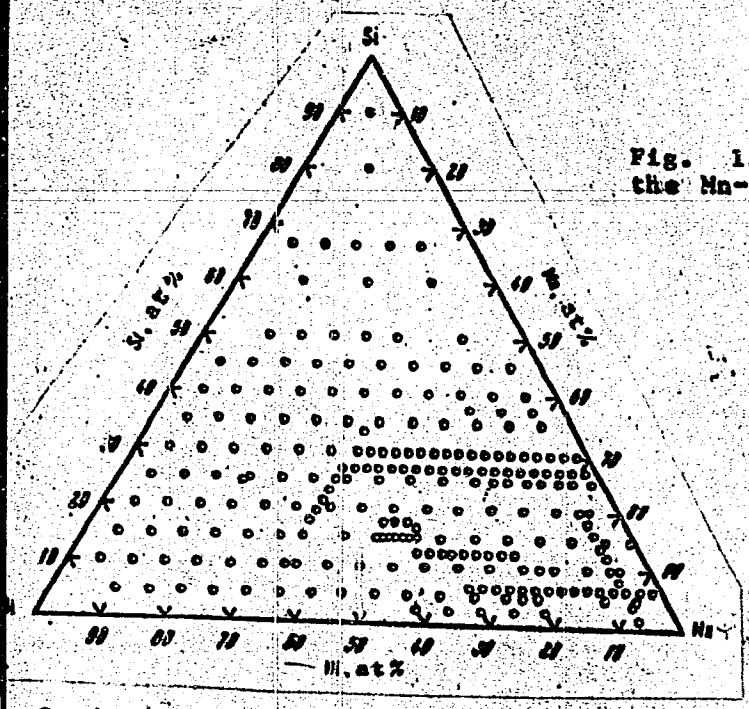


Fig. 1. Isothermal section of the Mn-Ni-Si phase diagram

Card 3/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 36655-65 EWT(1)/EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)/EEC(b)-2/EWA(c) Pu-4

ACCESSION NR: AP5002807 JJP(c) JD/WW/JG S/0078/65/010/001/0288/0290

AUTHOR: Kripyakevich, P. I.; Protasov, V. S.; Cherkashin, Ye. Ye.

TITLE: The crystal structure of the compound $ZrFe_3$

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 1, 1965, 288-290

TOPIC TAGS: zirconium iron sub 3, zirconium sub 6 iron sub 23, crystal structure

ABSTRACT: The composition of $ZrFe_3$ described by V. N. Svechnikov, V. M. Pan, A. Ts. Spektor (Zh. neorgan. khimii, 8, 2118 (1963)) as a cubic face-centered material with Ti_2Ni or W_3Fe_3C (η-phase) structure was reviewed. The Th_6Mn_{23} and Ti_2Ni type structures were believed more probable, and the intensity of the X-ray lines was calculated on this basis. The line intensities corresponded best to the Th_6Mn_{23} type structure (space group $Fm3m\text{-}O_h^5$). Cause for the discrepancy between the composition of $ZrFe_3$ and the ideal Zr_6Fe_{23} were proposed. Values for the density and the number of atoms per unit cell approach those calculated theoretically if the composition were assigned the formula Zr_6Fe_{23}. The authors conclude that the compound $ZrFe_3$ does not belong to

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 36655-65
ACCESSION NR: AP5002807

the type η -phase. Orig. art. has: 1 table

ASSOCIATION: L'vovskiy gosudarstvenny*y universitet im. I. Franko (Lvov State University)

SUBMITTED: 10Apr64 ENCL: 00 SUB CODE: MM

NR REF SOV: 001 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

KUZ'MA, Yu.B.; VOROSHILOV, Yu.V.; CHERKASHIN, Ye.Ye.

New ternary compounds having the structure type $M_2Cr_2P_2C$. Izv. AN SSSR. Neorg. mat. 1 no.7:1109-1111 Jl '65. (MIRA 18:9)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 46244-66 EWT(m)/EWP(k)/T/EWP(w)/EWP(v)/EWP(t)/ETI IJP(c) JD/HM /JH

ACC NR: AP6023915 SOURCE CODE: UR/0363/66/002/007/1206/1212

AUTHOR: Rabkin, D. M.; Cherkashin, Ye. Ye.; Ryabov, V. R.; Zalutskaya, O. I.

ORG: Institute of Electric Welding im. Ye. O. Paton (Institut elektrosvarki); L'vov State University im. I. Franko (L'vovskiy gosudarstvennyy universitet)

TITLE: Study of the phase composition of iron-aluminum welds

SOURCE: AN SSSR. Izv. Neorg materialy, v. 2, no. 7, 1966, 1206-1212

TOPIC TAGS: weld evaluation, iron compound, aluminum compound

ABSTRACT: Standard Debye powder patterns of the most stable phases of the Fe-Al system were obtained, and the variation of the lattice constant of the α phase with the quantitative content of aluminum was studied. The composition of the intermetallic interlayers in iron-aluminum welds was also investigated. The following series of phases was observed on passing from iron to aluminum: α-Fe - Fe_2Al_5 - ($FeAl_3$) - Al. It is shown that the weld undergoes brittle failure when the Fe_2Al_5 phase is present in the Fe-Al system, and that the strength of the weld is greater the lower the content of this phase in the interlayer. The Fe_2Al_5 phase was not observed in strong welds alloyed with other metals (Zn, Si, Cu, Ba). The phase composition of the intermetallic interlayers of these welds depends on the qualitative and quantitative composition of the alloyed aluminum filler wire. The following sequence of phases on passing from iron (steel) to aluminum is observed in welds alloyed with zinc (15%): α-Fe

Card 1/2 UDC: 621.791.053:541.412

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 46044-66

ACC NR: AP6023915

- Zn - Al; as the zinc content of the filler wire drops, the $FeAl_3$ phase appears. $FeZn_7$ (in welds alloyed with silicon), a small amount of $FeZn_7$ and traces of $FeAl_3$ (in welds alloyed with copper) and traces of $FeAl_3$ (in welds alloyed with barium) were found in addition to iron, zinc, and aluminum in welds alloyed with Si, Cu, and Ba. Precise determinations of the lattice constants of the phases in the welds showed the absence of an appreciable dissolution of other metals in α-Fe; in aluminum, the dissolution of other metals is already substantial, and it is still higher in zinc. Orig. art. has: 2 figures and 5 tables.

SUB CODE: 13/ SUBM DATE: 10May65/ ORIG REF: 008

joining of dissimilar metals

hs

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHIN, Yu.M., inzh.; KOCHNOV, A.D., inzh.

Method of direct integration on analog computers. Vest. TSNII MPS 23 no.8:60-62 '64 (MIRA 18:2)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHIN, Yu. N. and YASHKOV, V. Ya.

"A Geometrical InterPretation of Sound Scattering by a Wavy Surface."

paper presented at the 4th All-Union Conf. on Accustics, Moscow, 26 May - 2 Jun 58.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

BARKHATOV, A.N.; CHERKASHIN, Yu.N.; YASHKOV, V.Ya.

Experiments on measuring sound intensity in a laminated medium bounded by an undulatory surface. Akust.zhur. 7 no.2:159-164 '61. (MIRA 14:7)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete.
(Sound—Measurement)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

S/046/62/008/001/005/018
B125/B102

24,1200 (1144,1147,1327)

AUTHORS: Barkhatov, A. N., Cherkashin, Yu. N.

TITLE: Measurement of the backscattering of sound from an internal wave

PERIODICAL: Akusticheskiy zhurnal, v. 8, no. 1, 1962, 56 - 59

TEXT: The authors estimated the scattering of sound from an internal wave between two liquids whose refractive indices differed relatively little from one another. The measuring apparatus consisted of a plexiglas tank, a vibrator for exciting the internal standing and running waves with 4 to 20-cm wavelengths and 0.3 to 4-cm amplitudes at the boundaries between two liquids, sound emitter and sound receiver, transmitting and receiving electrical channels connected with the counter. The shape and the statistical properties of the internal wave were studied by an electrical resistance pickup. Fig. 3 shows the curves for the correlation coefficients of the inhomogeneities superimposed on the periodic wave in the direction of the propagation (Curve 1) and in the direction vertical to it (Curve 2). The fluctuations in the boundary displacement were $\sim 1/10$ of the mean wave amplitude. The modulation of the scattered wave

Card 1/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Measurement of the...

was studied by means of a generator for standard signals, a mixer, and a selective amplifier of the intermediary frequency that were connected to the receiver channel. The identically equal sound emitter and sound receiver consist of sintered barium titanate. For the field scattered from the wavy surface $\varkappa = \sigma p/p_p = v'/v_o$ holds within the Fraunhofer region (i.e. for distances $r \gg A^2/\lambda$, A is the double amplitude of the internal wave, λ is the length of the sound wave). $\varkappa$ is the radiation intensity, σp is the sound pressure of the field scattered from the receiver, p_o is the pressure of the wave on that part of the scattered surface that has to be studied. v_o is the amplified voltage corresponding to the sound pressure. For 10 to 20 cm long internal waves with an amplitude of 1 to 2 cm $\varkappa$ is 10^{-3} to 10^{-4}. In the second measuring method of strobing a part of the received signal and the signal produced in the standard signal generator were received by a mixer. The resultant signal with the frequency difference then passed through a filter of intermediary frequency. The results of this second method agree well with the results of the method already described. The scattering of the sound propagating in the

Card 2/4

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

S/046/62/008/001/005/018
B125/B102

transition layer between media with similar refractive indices in the presence of internal gravitation-induced waves was studied already by G. D. Malyushinets (Akust. zh., 1959, 5, 1, 70 - 76). The present paper demonstrates the possibility of studying weak effects by laboratory experiments. P. I. Kozinyuk and L. N. Yurkova are thanked for adjusting the apparatus; A. A. Viktorova and D. A. Selivanovskiy are thanked for their calculations. There are 4 figures and 1 Soviet reference.

ASSOCIATION: N.-i. radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete (Radiophysical Scientific Research Institute of the Gor'kiy State University)

SUBMITTED: April 26, 1961

Card 3/4

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

BARKHATOV, A.N.; CHERKASHIN, Yu.N.

Deformation of a sound beam by an internal wave on the boundary of two liquids. Akust. zhur. 9 no.1:112-113 '63. (MIRA 16:5)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete.
(Sound waves)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 25257-65 EWT(d)/EWP(e)/EWA(d)/EWP(v)/T/EWP(k)/EWP(h)/EWP(l) Pf-4

ACCESSION NR: AP5002699 S/0231/64/000/008/0060/0062

37
36
B

AUTHOR: Cherkashin, Yu. M (Engineer); Kochnov, A. D. (Engineer)

TITLE: Direct integration by means of analog computers

SOURCE: Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta. Vestnik, no. 8, 1964, 60-62

TOPIC TAGS: direct integration, analog computer, differential equation, excitation function, accelerometer, optimum damping, railroad dynamics

ABSTRACT: An investigation into the dynamics of railroad rolling stock and the interaction between the rolling stock and the tracks may be reduced to the solution of systems of ordinary differential equations, each problem containing as many equations of the second order as there are degrees of freedom in the design diagram. The investigation of these differential equation systems is greatly simplified by the development of the analog computer. The solution of a differential equation by the direct integration method requires only an excitation function, and not its derivatives. In the case of a railroad car, such a function represents the shifting of its center of gravity in space. The use of direct integration makes it

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 25257-65

ACCESSION NR: AP5002699

possible to employ an analog computer for the rapid solution of a wide range of theoretical problems involving the dynamics of rolling stock, with a high degree of accuracy, especially when the time change of the excitation function is analytically complex or not known beforehand. Orig. art. has: 11 formulas and 3 figures.

ASSOCIATION: Ural'skoye otdeleniye TsNII MPS, Sverdlovsk (Urals branch, TsNII MPS)

SUBMITTED: 00 ENCL: 00 SUB CODE: DP, GO

NO REF SOV: 000 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Cherkashin, Yu. S.

USSR/Radiophysics - Generation and Conversion of RF Oscillations, I-4

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35274

Author: Cherkashin, Yu. S.

Institution: None

Title: Static Frequency Multipliers for Remote Control Installation

Original Periodical: Sb. statey nauch. stud. o-va Mosk. energ. in-t., 1955, No 8, 118-123

Abstract: None

Card 1/1

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

S/046/63/009/001/019/026
B104/B186

AUTHORS: Barkhatov, A. N., Cherkashin, Yu. N.

TITLE: The deformation of a sound beam by an internal wave on the interface of two liquids

PERIODICAL: Akusticheskiy zhurnal, v. 9, no. 1, 1963, 112 - 113

TEXT: The field of a sound beam scattered from a quasiperiodic interface of two immissible liquids (water and turpentine) was studied in an experimental apparatus. The angle of incidence was 30°, and the periodicity was excited mechanically. The aim of the study was to demonstrate that it is possible to simulate the influence of internal waves on the sound field. The emitter was installed in turpentine and sent pulses (500 kc/s) of 10 - 150 μsec duration) to the interface. The sound field was measured with a receiver which was identical with the emitter. Results: The beam width varies periodically. The distortion of long waves is greater than that of short waves. The pressure maximum in the reflected beam is somewhat smaller if the interface is periodical than if the beam is reflected from a plane interface. If the beam impinges on a convex part of the interface it is broadened to ≈10 % of the width compared with that reflected from a

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

The deformation of a sound beam...

plane interface. The beam width is smaller if it is reflected from a concave part of the interface. There is 1 figure.

ASSOCIATION: N.-i. radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete (Scientific Research Institute of Radio-Engineering at the Gor'kiy State University)

SUBMITTED: March 28, 1962

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, A.G.

PHASE I BOOK EXPLOITATION SOV/4403

Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki

Avtomaticheskoye upravleniye; [sbornik rabot] (Automatic Control; Collected Works) [Moscow] Izd-vo AN SSSR [1960] 431 p. Errata slip inserted. 5,500 copies printed.

Ed.: Ya.Z. Tsypkin, Doctor of Technical Sciences, Professor; Ed. of Publishing House: Ye.N. Grigor'yev; Tech. Ed.: G.A. Astaf'yeva.

PURPOSE: This collection of reports is intended for scientists and engineers engaged in the study of automation.

COVERAGE: The collection contains reports presented at the 6th Conference of Young Scientists of the Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Telemechanics of the Academy of Sciences USSR) in January 1959. The collection covers a wide range of scientific and technical problems connected with automatic control. No personalities are mentioned. References accompany each report.

Kuznetsov, O.P. Application of the Prediction Calculations for the Synthesis of Common-Class Multicycle Circuits 339

The author makes a detailed analysis of multicycle circuits and describes the solution of the synthesis problem. He reduces the problem of synthesis to one of recording the operating conditions of the circuit in the form of prediction formula and of constructing corresponding formulas. In making such an analysis of switching circuits, it is found that all the contacts are independent variables and that their function is the conduction of the system. Thus they are the inputs or circuit contacts of sensing devices and their state does not depend on circuit conduction. These circuits, however, belong only to the single-cycle system which represents only a part of relay-switching circuits. In multicycle circuits, the conduction in the circuits acting upon the outputs depends upon the specific sequence of input switching. In these cases the circuit structure is considerably modified and time dependences appear in its operating conditions. The author discusses an example of simplifying the synthesis method of multicycle circuits. There is one Soviet reference.

Timofeyev, B.L. Mechanization of the Process of Minimization of Relay-Circuit Variants in the Class of Disjunctive Normal Forms 345

The paper deals with the logical design of relay circuitry. The author finds that the method developed by M.A. Gavrilov is the most suitable for the mechanization of the designation of all elementary components. He describes the essence of this method and discusses the Ye.K. Voyshvillo's method which is used in the second stage of the minimization process. The author then describes several units of the machine as used for minimization procedure in the simplification of relay-circuit design. There are 18 references: 8 Soviet (including 1 translation), 9 English, and 1 French.

Kossov, O.A. Circuits of Transistor-Magnetic Power Amplifiers 386

The author discusses the problem of designing high quality, quick-action power amplifiers with a high gain, high efficiency, small dimensions, and of low weight. This problem may be effectively solved by applying junction transistors for the preliminary amplification of the signal which controls the magnetic amplifier. The author describes such an arrangement and concludes that transistor-magnetic amplifiers which use switching junction transistors in their output stage possess considerable advantages. There are 6 references: 2 Soviet, and 4 English.

Cherkashina, A.G. Matching the Parameters of a Control Circuit in a Motor With a Transistorized Output Stage 393

The author presents the derivation of formulas for the calculation of the control winding and of the resonant capacitance of two-phase induction motor of the DA-1 type used for operation with a transistorized amplifier. The author explains the character of the changes occurring in the input impedance of the control winding according to changes in the load. There are 2 references, both Soviet.

Volodin, V.S., and A.G. Cherkashina. Integrator of a Self-Adjusting Automatic-Control System With Forced Oscillations 380

After reviewing the varieties and disadvantages of automatic-control systems now in use, especially those with an integrator containing an electromechanical transducer in the input circuit, the author describes the design of an integrator which is based on reliable and economical magnetic and semiconductor components. There are 3 references, all Soviet.

Cherkashina, A.G. Design of Transistorized Amplifiers for Servodrives 399

The author describes the design of a servoamplifier realized by means of the grapho-analytical method, which in many respects is identical to that used for tube amplifiers. There are 3 references, all Soviet.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4041336 S/0119/64/000/006/0003/0006

AUTHOR: Cherkashina, A. G.

TITLE: Capacitance amplifier

SOURCE: Priborostroyeniye, no. 6, 1964, 3-6

TOPIC TAGS: amplifier, capacitance amplifier, diode capacitance amplifier, semiconductor, semiconductor diode

ABSTRACT: A low-power amplifier whose functioning depends on the capacitance of the p-n junction of a semiconductor diode is considered. Equivalent circuits and formulas describing the behavior of the amplifier are given. Characteristics of a 200-kc, two-D808-diode amplifier taken experimentally are presented. Tests have shown that the amplifier is practically insensitive to temperature within 20—85C; its input resistance is 65—110 Mohms; even harmonics are very small; the power gain is about 10^3 —10^4. Its disadvantages are: (1) a narrow range of

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4041336

the input voltage and (2) low output power. Orig. art. has: 7 figures and 7 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: EC NO REF SOV: 003 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4042899 S/0119/64/000/007/0015/0016

AUTHOR: Cherkashina, A. G. (Engineer)

TITLE: Semiconductor frequency divider and an element with n stable states

SOURCE: Priborostroyeniye, no. 7, 1964, 15-16

TOPIC TAGS: frequency divider, semiconductor frequency divider, parametron type circuit

ABSTRACT: An elementary discussion of a frequency divider, which can be regarded as an element with n stable states, is presented. A parametron-like scheme (see Enclosure 1) is suggested for dividing the frequency by 2. An experimental verification with a D7G diode and P16A transistor is mentioned. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 01

SUB CODE: EC NO REF SOV: 000 OTHER: 000

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, A.G.

Problems concerning duplicity of nonlinear reactive components.
Elektrichestvo no.12:18-20 D '64. (MIRA 18:12)

1. Institut avtomatiki i telemekhaniki, Moskva.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 40068-66 EWT(1)

ACC NR: AP6019779 SOURCE CODE: UR/0119/66/000/006/0013/0016

AUTHOR: Norkin, K. B. (Candidate of technical sciences); Spiridonov, V. D. (Engineer); Cherkashina, A. G. (Engineer)

39
36
B

ORG: none

TITLE: Wideband amplifier with a semiconductor modulator-demodulator channel

SOURCE: Priborostroyeniye, no. 6, 1966, 13-16

TOPIC TAGS: wideband transmission, dc amplifier, junction diode

ABSTRACT: The authors discuss the development of an amplifier system which can be used as a control element for guided models. The requirements of high grain, and stable wideband amplification of control signals are met through the use of semiconductor elements and a modulation-demodulation technique within the amplifier. The modulator--demodulator channel is solid state, the dc amplifier uses tubes. A block diagram of the system is shown in figure 1. The design of the modulator is based on the nonlinear voltage dependent junction capacitance of special pn diodes (varicaps). Principles of operation, characteristics, and specifications are outlined. The demodulator converts the amplitude variations of the input signal into pulse-width variations of a 100Khz rectangular wave carrier signal, using variable storage time of carriers in transistors. The average of the demodulator pulses is then taken. Waveforms illustrat-

UDC: 621.375.121:621.375.4

Card 1/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

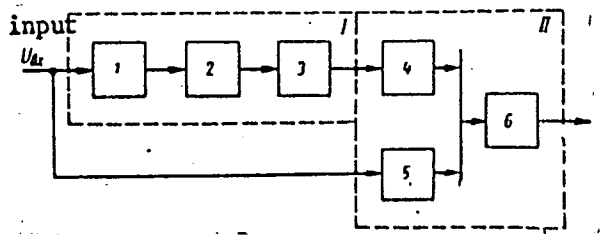


Fig. 1. 1--modulator; 2--transistor amplifier; 3--demodulator; 4, 5, 6--dc amplifiers

ing the operation of the demodulator are included. The schematic diagram of the modulator-demodulator channel is shown in figure 2. The averaged demodulator output is

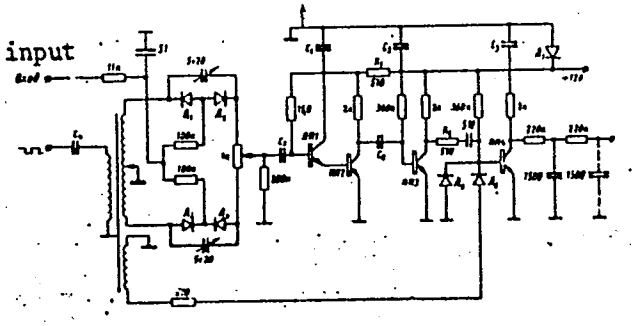


Fig. 2. D_1-D_4--diodes of type D808; D_5 and D_6--type D104; D_7--type D813. C_1-C_6=33,000 pf.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 40068-66

ACC NR: AP6019779

3

fed into a dc amplifier using electron tubes. The output voltage from the dc amplifier can be made to vary between -100 and +100 volts. The overall amplification factor of the total amplifier system is 10^7 at dc and greater than 100 at 100Khz. The modulator-demodulator channel increases the system gain by a factor of more than 1000. Because of the careful design, no special temperature compensation circuits are required, yet the system performs as specified over a temperature range of 10-60°C. Yu. N. Vladimirov, Yu. A. Mel'nikov, and V. M. Nesterova took part in the development of the device. Orig. art. has: 7 figures, 1 table. [14]

SUB CODE: 09/ SUBM DATE: none/ ORIG REF: 010/ OTH REF: 001

Card 3/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, A.I., inzh.

Results of the revision of plans and estimates in the Irkutsk Economic Region. Prom.stroi. 37 no.10:5-6 O '59. (MIRA 13:2)

1. Promstroyproyekt.
(Irkutsk Province--Construction industry--Costs)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, F. M. and CHERKASHIN, Ye. Ye.

"Cryoscopy as a Method of Physico-Chemical Analysis," Dokl. AN SSSR, 69, No.4, 1949

L'vov State U. im. Ivan Franko

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

5(3)

AUTHORS: Kazanskiy, B. A., Lukina, M. Yu., Cherkashina, L. G. SOV/62-59-3-29/37

TITLE: Isomerization of Vinyl Cyclopropane in the Presence of Kieselguhr (Izomerizatsiya viniltsiklopropana v prisutstvii kizel'gura)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 3, pp 553-554 (USSR)

ABSTRACT: This is a brief communication on the experiment to determine the influence exercised by the conjugated double bond on the stability of the three-membered cycle during the isomerization. It is known that alkyl cyclopropanes isomerize relatively easily under the action of a series of catalysts and pass into an olefin mixture (Refs 3-5). The authors used kieselguhr for their investigation because in its presence ethyl cyclopropane is isomerized almost completely at 120° (Ref 5). The experiments carried out with vinyl cyclopropane under the same conditions have shown that quite unexpectedly no piperylene was present in the catalyst. With the exception of the first few drops the catalyzate showed constants of the initial hydrocarbon and produced no adduct with maleic anhydride. At 150° not more than

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Isomerization of Vinyl Cyclopropane in the Presence of Kieselguhr SOV/62-59-3-29/37

10 % of diene were observed in the catalyzate. It was obvious to assume that vinyl cyclopropane is more reaction-resistant than ethyl cyclopropane. This was, however, refuted in the course of further experiments. It was found that the three-membered cycle which is conjugated with a double bond may be isomerized in the presence of kieselguhr. The degree of stability of the cycle in this case cannot be determined according to the amount of the forming piperylene since the latter completely poisons the catalyst. There are 3 tables and 6 Soviet references.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: July 18, 1958

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

11.9200
11.2219
15.8150

34989
S/190/62/004/003/009/023
B110/B144

AUTHORS: Berlin, A. A., Cherkashina, L. G., Balabanov, Ye. I.

TITLE: Polymers with the system of conjugated double bonds and heteroatoms in the conjugation chain. XX. Synthesis and examination of basic physicochemical properties of polymeric phthalocyanines

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 3, 1962, 376-382

TEXT: The synthesis and the structural dependence of electrical, magnetic, electron and ion exchange properties were studied in polymeric phthalocyanines on the basis of tetracarboxylic acids (pyro-mellithic acid (I) and 3,3',4,4'-tetracarboxy diphenyl ester (II)) and those consisting of mixtures of these acids with phthalic anhydride. A mixture of monomer and soluble polymer in dimethyl formamide was obtained at 180-210°C and a 1 : 3 : 3.6 ratio in the presence of CuCl and NH_4MoO_4. The polymers from I and II consisted of two finely disperse, powdery, fractions. For I: П-1-H (P-1-N) and T-1-H (T-1-N) precipitable from dimethyl formamide by $CHCl_3$; and for II: unprecipitable П-1-P (P-1-R) and T-1-P (T-1-R). They

Card 1/5

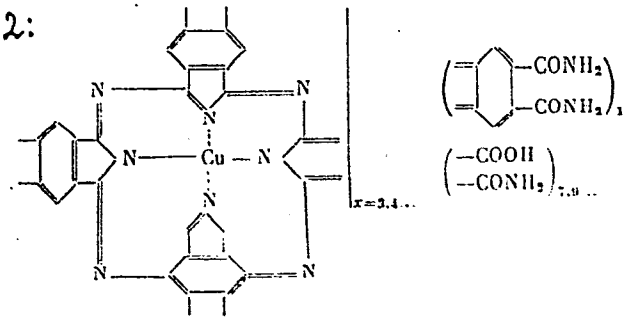
APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Polymers with the system of ...

were heated to 200-350°C/3 mm Hg to sublime impurities. H_2SO_4-resistant trimeric structures did not exist. Elementary analysis and equivalent weights found by potentiometric titration, showed P-2 and T-2 to be low-molecular and linearly arranged. The IR spectra of P-2 and T-2 showed bands of phthalocyanine and of primary carbonyl amine, C=O, and COOH groups. Hence:

P-2:



Card 2/5

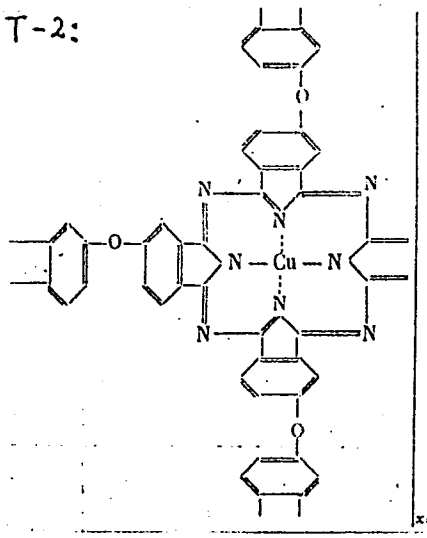
APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

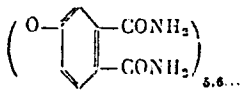
S/190/62/004/003/009/023
B110/B144

Polymers with the system of ...

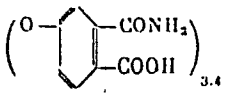
T-2:



x=3,4...



5,6...



3,4

Card 3/5

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

P-2 and T-2 are constant in air at $\leq 350^{\circ}C$. At $375^{\circ}C$, thermooxidative destruction in T-2 is more intensive than in P-2 owing to the oxygen bridges contained in the former. The magnetic susceptibilities $\varkappa$ for P-2 at H = 3500, 4000, 4500 oe were $2.0 \cdot 10^{-6}$, $1.9 \cdot 10^{-6}$, and $1.8 \cdot 10^{-6}$ cgsm, respectively, and $\varkappa = 2.1 \cdot 10^{-6}$, $1.9 \cdot 10^{-6}$, and $1.75 \cdot 10^{-6}$ cgsm for T-2. Polyphthalocyanines have comparatively broad epr bands of high intensity with a distance of 100-150 oe between their maxima, and a g-factor of ≈ 2.025. The conductivity was measured with an ЭМУ-2 (EMU-2) amplifier at $20\text{-}200^{\circ}C$ and $< 10^{-17}$ $ohm^{-1}cm^{-1}$ and at ≤ 3 kv/cm. The conductivity $\sigma_{300^{\circ}K}$ of P-1-N ($200\text{-}350^{\circ}C$/3 mm Hg) subjected to heat treatment increases from 10^{-10} to 10^{-8}. The intensity of epr spectra for P-1-N and T-1-N increases. Reprecipitation of polyphthalocyanines from concentrated H_2SO_4 increased their conductivity and the intensity of epr signals. The correlation between epr signal indications and conductivity is explained as follows: "Nonactivated conductivity" exists in the "ordered regions" with broad epr bands. Transitions between these regions require activation energy. There are 4 figures and 2 tables. The most important reference to English-language publications reads as follows: W. D. Drinkard, J. C. Bailar, J.

Card 4/5

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Polymers with the system of ...

S/190/62/004/003/009/023
B110/B144

Amer. Chem. Soc., 81, 4795, 1959.

ASSOCIATION: Institut khimicheskoy fiziki (Institute of Chemical Physics)

SUBMITTED: February 22, 1961

Card 5/5

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ROGINSKIY, S.Z.; BERLIN, A.A.; GOLOVINA, O.A.; DOKUKINA, Ye.S.; SAKHAROV, M.M.; CHERKASHINA, L.G.

Catalytic activity of copper polyphthalocyanines in relation to the reaction of decomposition of hydrogen peroxide. Kin. i kat. 4 no.3:431-436 My-Je '63. (MIRA 16:7)

1. Institut khimicheskoy fiziki AN SSSR.
(Phthalocyanins) (Catalysis)
(Hydrogen peroxide)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

BALABANOV, Ye.I.; FRANKEVICH, Ye.L.; CHERKASHINA, L.G.

Electrophysical properties of polymeric phthalocyanins. Vysokom.soed. 5 no.11:1684-1690 N '63. (MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

BERLIN, A.A. (Moskva); MATVEJEVA, N.G. [Matveyeva, N.G.] (Moskva); CERKASINA, L.G. [Cherkashina, L.G.] (Moskva); SERLE, A.I. [Sherle, A.I.] (Moskva).

Synthesis of polymers with heteroatoms and atoms of metals in a molecular chain and some of their properties. Chem prum 13 no.11:601-605 N'63.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ROGINSKIY, S.Z.; BERLIN, A.A.; KUTSEVA, L.N.; ASEYEVA, R.M.; CHERKASHINA, L.G.; SHERLE, A.I.; MATVEYEVA, N.G.

Catalytic properties of organic polymers with a system of conjugated bonds. Formation of hydroperoxides by the oxidation of alkyl aromatic hydrocarbons and cyclohexane. Dokl. AN SSSR 148 no.1:118-121 Ja '63. (MIRA 16:2)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent AN SSSR (for Roginskiy).
(Hydrocarbons) (Hydroperoxides)
(Conjugation (Chemistry))

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4037280 S/0190/64/006/005/0832/0837

AUTHOR: Berlin, A. A.; Cherkashina, L. G.; Frankevich, Ye. L.; Balabanov, Ye. M.; Aseyev, Yu. G.

TITLE: Polymers with a conjugated system. I. Synthesis and investigation of the electrophysical properties of polymeric phthalocyanines

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 5, 1964, 832-837

TOPIC TAGS: organic semiconductor, semiconductor polymer, phthalocyanine polymer

ABSTRACT: The effect of oxygen-containing groups and the effect of branching on the electrical properties of phthalocyanine polymers have been studied. This was considered of interest because previously prepared phthalocyanines based on aromatic tetracarboxylic acids

Card 1/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4037280

showed semiconducting and catalytic properties. The polymers in this study were synthesized by reacting 1,2,4,5-tetracyanobenzene (TCB) or TCB and phthalonitrile (PN) with copper powder or Cu_2Cl_2 in the presence of urea at 300C. PN was added to control both the degree of branching and the content of nitrile end groups, which were subsequently converted to oxygen-containing groups by hydrolysis with H_2SO_4. The electrical conductivity at 300K for the TCB polymers was 10^{-5} to 10^{-2} ohm^{-1} cm^{-1} and the activation energy was 6—2 kcal/mol. These figures for phthalocyanine polymers prepared earlier from pyromelitic acid were 10^{-4} ohm^{-1} cm^{-1} and 4.2 kcal/mol. For the polymers from TCB and PN which contain oxygen groups, the conductivity was 10^{-5} ohm^{-1} cm^{-1} and $10^{-2.6}$ ohm^{-1} cm^{-1} for reprecipitated and nonreprecipitated samples, respectively. The thermal stability of the phthalocyanine polymers with oxygen-containing groups was higher than that of the nitrile-group-containing analogs (300—350C versus 250C). This research was done at the Institute of Chemical Physics, Academy of Sciences SSSR. Orig. art. has: 3 figures, 2 tables, and 2 formulas.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4037280

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 03Jun63 DATE ACQ: 09Jun64 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 003

Card 3/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4040482 S/0190/64/006/006/1028/1034

AUTHOR: Frankevich, Ye. L.; Busheva, L. I.; Balabanov, Ye. I.; Cherkashina, L. G.

TITLE: Study of the semiconducting properties of polymeric copper phthalocyanine

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 6, 1964, 1028-1034

TOPIC TAGS: copper phthalocyanine, copper phthalocyanine polymer, organic semiconductor, semiconducting polymer, mobility determination

ABSTRACT: A study has been made of the semiconducting properties of copper phthalocyanine polymers with no oxygen-containing side groups synthesized earlier from aromatic nitriles (A. A. Berlin, L. G. Cherkashina, Ye. L. Frankevich, Ye. I. Balabanov, and Yu. G. Aseyev, Vysokomolek. soyed., 6, 832, 1964). The temperature dependence of electrical conductivity and thermoelectric power were determined in special equipment (described in the article): 1) in vacuum ($5 \cdot 10^{-6}$ mm Hg) for pellet samples degassed by vacuum heat

Card 1/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4040482

treatment and 2) in oxygen (100 mm Hg) for samples heat treated in oxygen. The temperature dependence of conductivity obeyed the exponential law

$$\delta = \delta_0 \exp(-E/kT),$$

where E = 0.1 ev; in vacuum

$$\delta_{22} = (1—2)\ 10^{-2}\ \text{ohm}^{-1}\ \text{cm}^{-1}.$$

The thermoelectric power was low (150μv/C max) and increased slowly with temperature; its sign indicated n-type conductivity. Oxygen lowered conductivity, indicating conduction electron trapping by O_2 molecules. This conductivity drop could not be reversed by removal of "weakly bound" oxygen under mild conditions (40—90C), but only by prolonged heating under severe conditions (2—3 days at 300C) which removed "strongly bound" oxygen. A new technique for determining carrier mobility in polymers is proposed which is based on the simultaneous measurement of the amount of polymer conductivity and

Card 2/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

ACCESSION NR: AP4040482

of desorbed acceptor molecules by mass spectroscopy. The mobility thus measured was of the order of 10^{-2} $cm^2/v \cdot sec$ and carrier concentration of the order of 10^{18}—10^{19} cm^{-3}. "The authors express their appreciation to A. A. Berlin and V. L. Tal'roze for their interest in this work and discussion of the results." The work was done at the Institute of Chemical Physics, Academy of Sciences USSR. Orig. art. has: 6 figures, 1 table, and 2 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 27Jun63 DATE ACQ: 06Jul64 ENCL: 00

SUB CODE: OC, SS NO REF SOV: 006 OTHER: 005

Card 3/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

BERLIN, A.A.; PARINI, V.P.; FRANKEVICH, Ye.L.; CHERKASHINA, L.G.

Local activation effect during the reaction between tetracyanobenzene and some aromatic hydrocarbons. Izv. AN SSSR Ser. khim. no.11:2108-2110 N '64 (MIRA 18:1)

1. Institut khimicheskoy fiziki AN SSSR.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 60038-65 EPA(s)-2/EWT(m)/EWP(j) Pc-4/Pt-7 JAJ/RM

ACCESSION NR: AP5018433 UR/0191/65/007/007/1264/1269
541.64:678.01:53+678.745

AUTHOR: Cherkashina, L. G.; Frankevich, Ye. L.; Yeremina, I. V.; Balabanov, Ye. I.; Berlin, A. A.

TITLE: Synthesis and study of the electrophysical properties of polymeric phthalocyanines

39
38
B

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 7, 1965, 1264-1269

TOPIC TAGS: organic semiconductor, semiconducting polymer, polymeric copper phyhalocyanine, electrical property

ABSTRACT: This work was done because polymeric copper phthalocyanines from 1, 2, 4, 5-tetracyanobenzene are of interest as organic semiconductors that are both readily molded and highly conductive. The optimum preparative conditions have been determined (given in the original article) and the morphology, chemical structure, and electrical properties of the products were found to be dependent on the synthesis temperature, pressure, and time and on the subsequent degassing time. The polymers prepared had electrical conductivities at 300K from 1×10^{-5} to 3.9 $ohm^{-1} \cdot cm^{-1}$ and activation energies for conduction from 0.12 to

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 60038-65

ACCESSION NR: AP5018433

0.7 ev. A formula was derived which describes well the relationship between the degree of crystallinity and the activation energy for the polymers. Orig. art. has: 3 figures, 2 tables, and 3 formulas. [SM]

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 16Aug64 ENCL:

NO REF SOV: [illegible] OTHER:

Card [illegible]

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 23049-66 EWT(m)/EWP(j) WW/RM

ACC NR: AP6012708 SOURCE CODE: UR/0190/66/008/004/0627/0634

AUTHOR: Cherkashina, L. G.; Berlin, A. A.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Synthesis and investigation of certain physicochemical properties of polymeric phthalocyanines

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 4, 1966, 627-634

TOPIC TAGS: organic semiconductor, semiconducting polymer, polyphthalocyanine

ABSTRACT: Poly(magnesium phthalocyanine) (I) and its metal-free analog have been synthesized from 1,2,4,5-tetracyanobenzene. Polymer I was prepared by heating 1,2,4,5-tetracyanobenzene, urea, and powdered magnesium under argon at 300C, followed by appropriate purification. The metal-free homolog was prepared from I by treatment with concentrated H_2SO_4. For comparison, poly(magnesium phthalocyanine) was also prepared from pyromellitic acid, which was identical to I in composition. Elemental-analysis, solubility, and IR spectroscopy data suggested that I exists in the form of linear, and planar parquet-like structures. Electrical measurements were conducted with powder samples

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 23049-66

ACC NR: AP6012708

at 300K and 10^{-3} mm Hg. For I, electrical conductivity was of the order of 10^{-7} mho/cm (at an activation energy of 7 kcal/mol), which is 2—3 orders of magnitude higher than for metal-free polyphthalocyanine and about 4 orders lower than for poly(copper phthalocyanine). Thermal stability was higher for I than for poly(copper phthalocyanine), with decomposition setting in at 400C. Orig. art. has: 2 tables and 5 figures. [SM]

SUB CODE: 07, 20/ SUBM DATE: 06Apr65/ ORIG REF: 010/ OTH REF: 009
ATD PRESS: 4234

Card 2/2 UCR

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L. V. CHERKASHINA

USSR/Agriculture
Soils

Jul 49

"The Influence of Crop Rotation on Humus Composition in Gray Weakly Podsol Soil," M. A. Vinokuroc, L. V. Cherkashina, 3 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 2

Abandonment of old weakly podsol soil in accompanied by an increase of 1.03 - 3.00 in the ratio of humic to "fulvo" acids as a result of turf processes. After use of clover and timothy for 2 years this ratio is increased. Submitted by Acad B. B. Polynov 8 Apr 49.

PA 54/49T3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, M., inzh.

Our information. Stroitel' no.9:30 S '59. (MIRA 13:3)
(Building machinery)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, M., inzh.

Tilter for assembling reinforced concrete construction elements. Stroitel' no.11:27 N '60. (MIRA 13:11)
(Columns, Concrete)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

CA

CHERKASHINA, M.F.

2

Cryoscopy as a method of physicochemical analysis. K. K. Cherkashin and M. F. Cherkashina (L'vov, Gosudarst. Univ. im. Ivana Franko). *Doklady Akad. Nauk S.S.S.R.* 69, 801-4(1949).—The cryoscopic depression θ of a soln. is plotted against the total molar concn. m of the solutes, and the interaction factor $f = m/a$, where a = total activity of the solutes, is detd. from the plots. For an ideal soln. exemplified by CCl_4 in C_6H_6, $a = m$, and the empirical dependence of θ on m, of the form $\theta = 5.12\,m - 0.26m^2$ (from data of Bury and Jenkins, *C.A.* 28, 4049[a]), gives the dependence of θ on a. For a system involving 2 solutes, e.g. EtOH + Me_2CO, the exptl. curve of f_e as a function of the mole fraction n of Me_2CO is detd. from the family of exptl. curves of θ as a function of m at different n. A calcd. curve $f_c(n)$ is obtained by $f_c = m/(a' + a'')$, where the partial activities a' and a'' of the pure components are read from the exptl. curves. Finally, an ideal curve $f_i = f_1f_2/[(f_1 - f_2)n + f_2]$ is obtained with the aid of $f_1 = m(1-n)/a'$ and $f_2 = mn/a''$; it is, in general, a hyperbola convex to the axis of compn., and a straight line parallel to the axis of compn. in the particular case $f_1 = f_2$. Coincidence of all 3 curves indicates both stability and absence of interaction between the components. Coincidence of only f_e and f_c means absence of interaction but also nonstability of individual components, e.g. dissocn. Interaction between components manifests itself in a deviation of f_e from f_c. Formation of a stable compd. is expressed by a singular point on the f_e curves at all m. Analysis of the 3 types of $f(n)$ curves for the systems EtOH + Me_2CO and EtOH + $PhMe$, on the basis of the exptl. data of Udovenko and Batsch (*C.A.* 42, 4306, 43, 1255[e]), reveals, for the 1st system, at m = 1, very slight interaction, for the 2nd system, absence of interaction and dissocn. of assocd. EtOH. In EtOH + MeOH, dissocn. of the assocd. alcs. is fully compensated by their interaction. The system EtOH + AcOH shows, at high dilns., dimerization of AcOH; at m = 1, interaction between components exceeds their dissocn. An undissocd. compd. is indicated by a singular point in the system MeOH + CCl_3CHO, but, judging by the coincidence of the exptl. and calcd. high-n branches of the curves, there is no further interaction between the compd. and CCl_3CHO. N. T.

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, M., inzh.

Modernized pliers. Stroitel' no.2:23 F '60. (MIRA 13:5)

(Pliers)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

IZOTOVA, M.A., glav. inzh.; KONTORER, R.B., inzh.; LEPIKHOVA, M.F., inzh.; TITKOVA, Z.V., inzh.; CHERKASHINA, M.F., spets. red.; VOLKOVA, S.N., otv. za izdaniye; KHARITONOVA, L.I., tekhn. red.

[Flow charts for work distribution in the sewing of women's and men's custom-made outerwear] Skhemy razdeleniia truda na poshivku zhenskoi i muzhskoi verkhnei odezhdy po individual'nym zakazam; sbornik. Moskva, Gosmestpromizdat, 1961. 490 p. (MIRA 15:7)

1. Moscow. TSentral'naya opytno-tekhnicheskaya shveynaya laboratoriya. 2. TSentral'naya opytno-tekhnicheskaya shveynaya laboratoriya Gosudarstvennogo komiteta Soveta Ministrov RSFSR po delam mestnoy promyshlennosti (for Izotova, Kontorer, Lepikhova, Titkova).
(Clothing industry)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

IZOTOVA, M.A., ; LEPIKHOVA, M.F., inzh.; KHOKHLOVA, N.D., inzh.; CHERKASHINA, M.F., spets. red.; VOLKOVA, S.N., otv. za izdaniye; TISHCHENKO, N.I., red.; KHARITONOVA, L.I., tekhn. red.

[Typical metnods of sewing light women's and children's custom-made dresses] Tipovye metody poshivki legkogo zhenskogo i detskogo plat'ia po individual'nym zakazam. 2., dop. i perer. izd. Moskva, Gosmestpromizdat, 1961. 237 p. (MIRA 15:7)

1. Moscow. TSentral'naya opytno-tekhnicheskaya shveynaya laboratoriya. 2. TSentral'naya opytno-tekhnicheskaya shveynaya laboratoriya Gosudarstvennogo komiteta Soveta Ministrov RSFSR po delam mestnoy promyshlennosti i khudozhestvennykh promyslov (for Lepikhova, Khokhlova). 3. Glavnyy inzhener TSentral'noy opytno-tekhnicheskoy shveynoy laboratorii Gosudarstvennogo komiteta Soveta Ministrov RSFSR po delam mestnoy promyshlennosti i khudozhestvennykh promyslov (for Izotova).

(Clothing industry)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, M.M., inzh.

Device for measuring electric wiring. Mont. i spets. rab. v stroi. 23 no. 1:24 Ja '61. (MIRA 14:1)
(Electric wiring)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

MALAN'IN, M.I.; KRUPENINA, A.P.; CHERKASHINA, M.M.; RUMYANTSEVA, V.V.; SHVETSOV, G.F., red.; SERGEYEVA, N.A., red. izd-va; GUROVA, O.A., tekhn. red.

[Concentration of diamond-bearing bedrock and sand] Obogashchenie almazosoderzhashchikh korennykh porod i peskov. By M.I.Malan'in i dr. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1961. 242 p. (MIRA 14:10)
(Diamond mines and mining) (Ore dressing)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

CHERKASHINA, M.M.

Roller shears for cutting sheet steel. Mont.i spets.rab.v stroi. 23 no.6:29 Je '61. (MIRA 14:7)
(Shears (Machine tools))

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

SISAKYAN, N.M.; ODINTSOVA, M.S.; CHERKASHINA, N.A.

Nucleotide composition of ribonucleic acids in cellular structures of plants. Biokhimiia 25 no.1:160-163 Ja-F '60. (MIRA 13:6)

1. Institut biokhimii imeni A.N. Bakha Akademii nauk SSSR, Moskva.
(RIBONUCLEIC ACID chem.)
(NUCLEOSIDES AND NUCLEOTIDES chem.)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

MITROFANOV, A.A., kandidat tekhnicheskikh nauk; CHERKASHINA, N.P., inzhener. VOLKOVA, M.A., inzhener.

Quality of the 08kp basic open-hearth steel smelted with use of oxygen at the "Zaporozhstal'" plant. Sbor.trud.TSNIICHM no.13: 171-181 '56. (MLRA 9:11)

(Zaporzh'ye--Steel--Metallurgy)
(Oxygen--Industrial applications)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

Cherkashina, N.P.

133-10-6/26

AUTHOR: Mitrofanov, A. A., Candidate of Technical Sciences, Cherkashina, N.P., and Volkova, M.A., Engineers

TITLE: The Quality of Steel 08кп, Produced With the Use of Oxygen. (Kachestvo Stali 08кп, Vyplavlyayemoy s Primeneniyem Kisloroda).

PERIODICAL: Stal', 1957, No.10, pp. 888-892 (USSR).

ABSTRACT: Five different practices in the application of oxygen in the open hearth furnace process are used in the Zaporozhstal' Works: A). A 25% oxygen enrichment of air supplied to flame (current production in 1956); B). The same, but up to 30%. V. Oxygen supplied to flame and to the bath at a low carbon content (blowing oxygen during refining). G. The same, but at a high carbon content (blowing during melting period). D. Blowing oxygen-water mixture into the bath. Practices A, V and G passed industrial tests during long periods. Long duration industrial tests of practices B and D will be carried out in the near future. In this paper the evaluation of metal quality produced by all five modifications of using oxygen is described. The evaluation was carried out according to ГОСТ 914-49 and ГОСТ 914-56. In addition the following factors were studied:

Card 1/5 the yield of good metal on the main manufacturing plants

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

The Quality of Steel 08кп, Produced (Cont.)

and the proportion of various defects, gas content (O_2, H_2 and N_2) in ladle samples and samples from slabs, the influence of the degree of oxidation of final slag on steel quality, macro and microstructure of metal, proportion of non-metallic inclusions, mechanical properties and the tendency of metal to mechanical ageing on the basis of tensile and impact tests, the tendency of metal to overheating and stamping ability of sheets (for motorcars, for complicated shapes). The following participated in the work: D. I. Shirinskiy, V. N. Lola, L. A. Zagadchenko (Engineers), V. M. Yudina, T. I. Zarya, G. K. Zamytskaya (Technicians from Zaporozhstal' Works), L. S. Kirik (laborant from TsNIIChM), Mochalov, Engr., (ZIL) and N. S. Zverev, Engr., (GAZ). The yield of good metal according to causes - Table 1. Defective sheets caused by metal quality and their distribution according to causes - Table 2. Gas content in ladle and slab samples - Table 3. The relationship between the degree of oxidation of slag before deoxidation, proportion of non-metallic inclusions and defects due to lamination (melts of practice V) - Table 4.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

The Quality of Steel 08кп, Produced (Cont.)

Results of the control of the macrostructure of metal Table 5. Size distribution of ferrite grains and precipitates of structurally free cementite in cold rolled sheets - Table 6. The dependence of the composition and quantity of non-metallic inclusions in metal on the smelting practice- Table 7. Results of stamping of cold rolled sheets (from heats made by different practices) on automobile works - Table 8. On the basis of the results obtained the following conclusions are drawn: 1. The yield of good metal from experimental heats of steel 08кп in the open hearth melting shop and in slabing and sheet rolling mills remained practically on the same level as for the current production. In the cold rolling shop the yield of good sheets from heats in which oxygen was blown during refining and melting as well as in which oxygen water mixture was used, remained on the same level as for current production (93.3 - 95.1%). 2. The content of gases (oxygen, hydrogen and nitrogen) in the metal from ladle samples of all experimental melts of steel 08кп is approximately on the same level, not exceeding the usual values for this steel. The gas content in samples of rolled products is practically independent from the smelting

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

The Quality of Steel 08кп, Produced (Cont.)

practice but is higher than in ladle samples. 3. In melts with combined method of using oxygen during refining (method V) increasing concentration of FeO in the final slag is accompanied by increasing contamination of the metal by complex oxide inclusions. 4. In respect of sensitivity to ageing the experimental method did not differ from that of current production. 5. According to defects on stamping on automobile works ZIL and GAZ experimental sheets differed little from those of current production, somewhat poorer results of stamping experimental sheets could be related to the teeming conditions of steel. The results for stamping ability of sheets from metal produced with the use of oxygen-water mixture require an additional checking. 6. The influence of the method of application of oxygen during smelting of steel on the mechanical properties of sheets, hardness, proportion of non-metallic inclusions, sensitivity to overheating, depth of stamping according to Erixon's method is practically absent. There are 8 tables and 2 Slavic references.

Card 4/5

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

The Quality of Steel 08кп, Produced (Cont.)

ASSOCIATION: TsNIIChM i zavod "Zaporozhstal'" .(TsNIIChM and "Zaporozhstal' Plant")

AVAILABLE: Library of Congress

Card 5/5

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 04189-67 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD
ACC NR: AT6026545 (A) SOURCE CODE: UR/2776/66/000/046/0020/0029

AUTHOR: Sinel'nikov, M. I.; Babakov, A. A.; Barziy, V. K.; Demchishin, A. V.; Laskaronskiy, E. N.; Lyublin, Ye. B.; Fel'dgandler, E. G.; Cherkashina, N. P.; Chernyavskaya, S. G.

ORG: Central Scientific Research Institute of Ferrous Metallurgy, Moscow (Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii)

TITLE: A study of the plasticity of 1Kh21N5T (EI811) steel at high temperatures

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. Sbornik trudov, no. 46, 1966. Spetsial'nyye stali i splavy (Special steels and alloys), 20-29

TOPIC TAGS: stainless steel, heat treatment, ~~hot ductility~~ plasticity, metallographic examination, austenite, ferrite, temperature dependence / 1Kh21N5T steel, EI811 steel

ABSTRACT: Ten heats of EI811 steel containing 4.8-5.3% Ni and 0.25-0.53% Ti were prepared in order to study the effect of temperature and ingot cementation time on phase composition. The dependence between phase ratios and metal plasticity at high temperatures was also studied. Samples were water quenched after heating at 1000, 1100, 1200, 1250 and 1300°C for 1, 2, 5 and 10 hr. Hot torsion tests were conducted at a twist rate of 60 rpm at 900, 1000, 1100, 1200, 1250 and 1300°C after a 20 min soak.

Card 1/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 04189-67
ACC NR: AT6026545

The number of hot twists to fracture increased as a function of temperature. After fracturing, the samples were water quenched to retain the high temperature structure and then examined metallographically. The amount of austenite as a function of heat treatment for each steel is given. Micrographs of each treatment are shown for representative steel samples. The quantity of ferrite increased with rise in temperature or increase in time at temperature, with the most intense $\alpha \rightarrow \gamma$ conversion occurring in the 1200-1300°C range; by holding for 10 hrs in this range almost all of the structure became ferritic. The plasticity at different temperatures depended on the ratio of α- and γ-phases in the structure at the given temperature. Maximum plasticity resulted for γ-phase contents less than 25-30%. It was recommended that the ingots of EI811 steel be soaked at higher temperatures throughout rolling than is normally typical, i. e., at 1290 to 1310°C instead of 1250 to 1270°C. Orig. art. has: 1 table, 6 figures.

SUB CODE: 11/ SUBM DATE: none

Card 2/2

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

BABAKOV, A.A.; FEDOROVA, V.I.; SOLOV'YEV, L.L.; LOLA, V.N.; DODOKA, L.I.; CHERKASHINA, N.P.; SHAMIL', Yu.P.; SMOLYAKOV, V.F.; BABKOV, T.M.; MOSHKEVICH, Ye.I.; PARADA, A.N.; REPESHKO-KRAVCHENKO, S.I.; ALEKSEYENKO, M.F.; KOROBKO, M.I.; KOROBKO, I.F.; AVERIN, N.M.; MATOV, A.A.; MIGUTSKIY, L.R.

Inventions. Met. i gornorud. prom. no.4:83 Jl-Ag '64.
(MIRA 18:7)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 45381-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) Pf-4/Pad IJP(c) MJW/JD/HW

ACCESSION NR: AP5007009 S/0129/65/000/003/0050/0052

AUTHOR: Cherkashina, N. P.; Barziy, V. V.; Babakov, A. A.

TITLE: Production of 1Kh21N5T sheet steel at the "Zaporozhstal'" Plant

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 3, 1965, 50-52

TOPIC TAGS: brittleness, metal mechanical property, heat treatment, steel hardening, austenite

ABSTRACT: To study the tendency of 1Kh21N5T steel toward embrittlement, sheet specimens of two melts differing in titanium content (see table 1 of the Enclosure) were quenched in water from 1100 and 1250°C (holding for 30 min) and tempered at 400-850°C. After heating to 1250°C, melt No. 1 had a purely ferritic structure, whereas melt No. 2 contained about 10% austenite. The metal of melt No. 1 with a two-phase structure (quenching from 1100°C) and the metal of melt No. 2 (quenched from 1250°C) both had a tendency toward brittleness. It was found that at 4.8-5.3% Ni and 0.09-0.11% C the greatest influence on embrittlement was exerted by excess titanium (0.15% more than the necessary minimum). To study the embrittlement tendency of steel of variable chemical compositions; the mechanical properties

Card 1/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1

L 45381-65

ACCESSION NR: AP5007009

3

of cold-rolled sheets and impact strength of samples of hot-rolled sheets were determined after tempering for 1 hr at 550°C. A technological process similar to that used for Kh18N10T steel was adopted for rolling batches containing 0.25-0.50% Ti and 4.8-5.3% Ni. This composition insures the stability of the mechanical properties. Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: Zavod "Zaporozhstal'" ("Zaporozhstal'" Plant); TsNIIChermet

SUBMITTED: 00 ENCL: 01 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

Card 2/3

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308420003-1"